Individual Motives for Choosing Self-employment in the UK: Does Region Matter?

2nd Revised Version September 2011

Abstract

Regional entrepreneurship policy is often framed in terms of spatial shortcomings in entrepreneurial culture. However differences in why individuals choose self-employment may reflect structure rather than culture. This paper investigates UK data for 1999-2001 on reported motives for choosing self-employment. After controlling for individual characteristics and industrial structure, some regional differences persist. These are largely for men and are quantitively small. Northern Ireland stands out, reflecting the different composition of its self-employed. Conclusions for the emphasis of regional policy and further research are discussed.

Keywords: self-employment, self-employment motives, regional entrepreneurship policy
JEL Classification: J24, M13, R58

1. Introduction

Contemporary regional policy in many parts of the world is focused on the promotion of entrepreneurship. This is because entrepreneurship is seen by regional policy makers as an important driver of regional economic development, through the promotion of market innovation and competitive dynamics (Wennekers and Thurik, 1999). New business start-ups are thought to create new employment opportunities (Parker and Johnson, 1996; Ashcroft and Love, 1996; Fritsch and Mueller, 2004; Fritsch, 2008; Dejardin and Fritsch, 2011). Start-ups are also believed to be involved in innovative activity, such that innovative entrepreneurship is viewed as a key transmission mechanism between the creation of knowledge and economic growth (Audretsch, 2007). Policymakers therefore see the nurturing of entrepreneurial talent as an instrument for promoting the development of the knowledge economy in the regional context.

In the case of the UK, devolved regional administrations and regional development agencies have each given the promotion of entrepreneurship a significant place in regional development strategies, often implying that differences in regional entrepreneurial culture are significant. However, some evidence suggests that such policies may have limited impact against other strong economic influences on new firm formation rates (Reynolds et al., 1994; van Stel and Storey, 2004) and that alternative approaches focusing on established businesses may have equal impact (Audretsch and Fritsch, 2002).

The purpose of the present paper is to address the question of whether self-employment rates vary between regions because individuals in different regions chose self-

employment for different motives, and in turn to suggest implications for the linkage between self-employment and regional development. The data used is collected in the UK through the Quarterly Labour Force Survey (QLFS), albeit only for a short period of time between 1999 and 2001. Specifically the paper focuses on whether, using regression analysis, regional variation in the pattern of motives for choosing self-employment is significant in affecting individual self-employment choice, after controlling for differences in demographic and other individual characteristics and for differences in regional industrial structure. The paper concludes that demographics and industrial structure are important, but that underlying regional differences, which may be attributable to regional variation in culture, are at best modest in importance. These may be different for men and women. However, effects may be localised and complex. The paper does not address how these may arise – pointing to a further qualitative research agenda to uncover spatial variation in attitudes towards self-employment.

The remainder of the paper is structured as follows. Section 2 discusses background and context. Section 3 describes the QLFS data source and describes the industrial structure of self-employment across UK regions as well as the raw pattern of reported *ex post* motivations for choosing self-employment. Section 4 describes how the motivations data are combined into five broad motives, 'opportunity', 'internal', 'family/lifestyle', 'necessity' and 'occupational'. A regression model specification is presented, which includes controls for demographics, housing status (as a proxy for wealth) and industrial structure. Regional differences in the incidence of particular motives are modelled through 12 UK government office region dummy variables. Results for both males and females are presented and findings discussed. Section 5 provides an overall assessment and discusses implications for public policy.

2. Background and Previous Literature

Linkages between entrepreneurial activity and regional development are considered highly important. Recent research, contained for example within special issues of *Regional Studies* and *Small Business Economics* (Reynolds et al., 1994; Acs and Storey, 2004; Fritsch, 2008 and Dejardin and Fritsch, 2011), suggests that levels of new firm formation and entrepreneurial activity may impact significantly on regional economic development. However this broad conclusion conceals a range of recent findings concerning the nature of that relationship, including questions about causation, industrial structure and innovation systems (Audretsch and Peña-Legazhue, 2011).

Aside from new firm formation, self-employment is typically taken to be a strong indicator of entrepreneurial activity. Here the literature poses the question of whether people in one region might be more likely to choose self-employment, and therefore, implicitly, addresses the underlying question of why spatial variation in self-employment activity might impact on regional development. If people in one region are more likely to choose self-employment, then the further question also arises of why this is the case.

Previous research has noted wide international variation in both the levels of self employment (Blanchflower, 2000) and the dynamics of individual entrepreneurial activity (as identified, for example, by the Global Entrepreneurship Monitor: Kelly et al., 2011). Regional variation in self-employment may also be significant (Robson, 1998). Both regional and international variations in the level of self-employment intentions are also significant

(Blanchflower et al, 2001; Reynolds et al., 2002; Minniti et al., 2005). In the UK self-employment rates have risen over the past 15 years, with the latest data suggesting resilience to the recession. Table 1 shows considerable regional variation with rates generally higher in the faster growing regions of the south and east, where there is less of a legacy of large scale, heavy industrial employment. However Parker (2009) notes that regional variation in self-employment rates is persistent over time.

Self-employment, as a choice, may result from a sequential process or 'ladder' (Henley, 2007; Grilo and Thurik, 2008; Ashcroft et al., 2009; van der Zwan et al., 2010), and those factors which are associated with the final decision to venture a business start-up may differ from those associated with the initial interest in considering self-employment. Differences across countries and regions in how individuals progress through the process may be significant (van der Zwan et al., 2011), as well as differences in who survives in self-employment (Millan et al., 2011).

Why particular individuals are more likely to choose to progress to self-employment over paid employment has also been the subject of substantial research (Parker, 2009). *Ex ante* formation of entrepreneurial intention, at the early stage of the entrepreneurial ladder, is the subject of substantial work (Krueger et al., 2000). Proposed antecedent constructs such as self-efficacy and locus of control (Gatewood et al., 1995) may have limited meaning to subjects when invited to reflect *ex post* on how they arrived in self-employment with an established business venture. *Ex post* reported motives may relate to a range of factors or themes.

A first theme considers the role of external market opportunity or local industrial structure, which may be reported *ex post* as market opportunity. At a spatial level demand side influences may affect market opportunities (Keeble and Walker 1994). Agglomeration and network effects (Rice et al., 2006) may also play a role. Evans and Leighton (1987) have shown a significant positive relationship between aggregate demand and male self-employment. Two distinct underlying factors may be at work. Firstly, higher disposable incomes will lead to greater demand for income-elastic services provided by small firms. Secondly, higher disposable incomes enable potential founders to raise capital more easily and at a lower cost. In the second case the self-employed may report the availability of resources as a motive. The severity of financing constraints is an important concern in the literature. For example, at the regional level, Robson (1998) concludes that self-employment is more prevalent where a high-proportion of GDP is accounted for by industries with relatively low barriers to self-employment (low capital intensity), and in regions where there is a high level of net housing wealth *per capita*.

The relationship between regional prosperity and self-employment has also been examined through the relationship with regional unemployment rates. The possibility of both 'prosperity-pull' and 'recession-push' effects (Gilad and Levine, 1986; Amit, 1994; Thurik et al., 2008) imply that the spatial self-employment-unemployment relationship is ambiguous. In lagging regions it is unclear if unemployment motives for self-employment will be higher or lower. In general cross-sectional studies find a negative relationship between the probability that an individual is self-employed and the local unemployment rate (Evans and Leighton, 1989; Blanchflower and Meyer, 1994). Time series analysis suggests the presence of both effects. Some research has suggested that the 'recession-push' effect is dominant,

however the most recent and sophisticated analyses find that the positive 'entrepreneurial' pull effect outweighs any negative association (Thurik et al. 2008, Parker 2009).

A second theme considers internal motives for choosing self-employment, reported *ex post* as a personal desire for autonomy or independence (Gatewood et al., 1995; Feldman and Bolino, 2000; Cassar, 2007). This may, particularly for women, also incorporate a desire to balance economic activity with family commitments (Hughes, 2003, 2006). At a spatial level, variation in the strength of these motives may relate to regional culture and attitudes (Johannisson, 1984; Acs and Armington, 2004; Nijkamp, 2003). Mueller and Thomas (2001) conclude that culture has an important impact on entrepreneurial potential at the national or regional level. In particular, cultures with low uncertainty avoidance and individualism (Hofstede, 1980) appear to be more supportive of the self-employed. Others argue that regional regression effects capture sociological, historical and geographic factors (Georgellis and Wall, 1999), which may in include historical sectoral concentration (Keeble and Walker, 1994). Self-employment may be compatible with particular cultures, influencing the legitimacy with which an individual might frame that choice. However, for significant numbers, self-employment may simply follow from a prior choice of occupation or profession, such as a construction trade or a profession such as veterinarian or accountant (Aronson, 1991).

A third theme of literature focuses on financial motives and, in particular, on individual financial rewards to self-employment or entrepreneurship (Carter, 2010). Research from a range of perspectives highlights the potential importance of financial motives. Economists point to the importance of opportunity costs, reflecting both the perceived financial benefits of self-employment and the relative financial penalty of the best alternative

in paid employment. Rees and Shah (1986) first concluded that the probability of transition to self-employment is positively associated with the size of the predicted self-employment-paid-employment earnings differential. Although subsequent studies have questioned the robustness of this conclusion (Taylor, 1996; Gill, 1988; Earle and Sakova, 2000), it lends support for the conclusion that monetary motives may figure significantly in why some people report that they have chosen self-employment. Little or no analysis of these issues has been undertaken at a regional level.

Previous research on reported *ex post* motives for choosing self-employment provides overwhelming evidence that decisions are based on positive rather than negative influences. Studies typically confirm the relative importance of the second theme (Dennis, 1996; Smeaton, 2003). Reported *ex post* motives may be subject to recall error or *ex post* justification bias (Cassar, 2007). The consequences of such measurement error, particularly where the motivations for self-employment are modelled as an outcome, may be significant and bias the estimates of any association between a particular motivation and an independent factor (Bertrand and Mullainathan, 2001). However opportunities to track *ex ante* intentions through to reported *ex post* motives do not exist within available data sources, and so the scale of such bias is unknown.

As noted, an important omission is any consideration of spatial differences in motives for choosing self-employment, and therefore the extent to which differences in the patterns of response might reflect regional characteristics. This is important because regional development policy designed to promote self-employment aspiration and activity (for example interventions to provide training or start-up support) may need to reflect particular spatial context. In the UK entrepreneurship policy is a devolved competency following the

establishment of regional assemblies or parliaments in Scotland, Wales and Northern Ireland. Regional and local agencies within England have also had considerable discretion to use budgets in different ways to support self-employment. Local discretion may increase with the recent creation of local enterprise partnerships. In several peripheral UK regions policy delivery has benefitted from European structural fund support, and significant resources have been directed towards small business start-up and support activities.

3. Data Sources and Descriptive Analysis

Data on reported motivations for self-employment used in this paper are from the United Kingdom Quarterly Labour Force Survey (QLFS), covering 1999 to 2001. The self-employed persons surveyed provide responses to a schedule of recall questions about self-employment choice.[1] The large size of the QLFS, particularly after pooling data from three consecutive years, facilitates a robust analysis of sample heterogeneity. Within the pooled sample 17,507 economically active individuals are self-employed (11.9 per cent of the total workforce sample).[2]

An important issue is that patterns of motivation might reflect regional variations in industrial structure. In particular, self-employment may be higher in a region because sectors in which self-employment is more preponderant are larger. This may point to the importance of sector-specific demand-led motives. Table 2 reports data on the breakdown of self employment by industrial sector among the 12 regions, using the QLFS data employed in the analysis as well as a more recent tabulation for 2010. Across the UK self-employment tends to be more concentrated relative to the working population as a whole in agriculture, in construction and in banking, finance and insurance services. In some regions, particularly in the periphery, there is also greater concentration in the distribution, hotels and restaurants and

transport sectors. The other feature of the table is that self-employment rates are typically higher in those sectors and regions where the workforce as a whole is relatively more significant. So, for example, self-employment in construction is proportionately higher in Eastern England, the South West, Wales, Scotland and Northern Ireland, regions which tend to have a higher overall proportion of their workforce in that sector. There is also greater regional variation in the proportions of self-employed in particular sectors, compared to overall workforce proportions. This is particularly pronounced in agriculture and fishing, where the proportion of the self-employed varies from 1 to 24 per cent, although it has fallen as the sector has declined in importance. In construction the range is from 14 to 26 per cent and has increased over time, and in public administration, education, health and other services from 14 to 28 per cent, with increases in some regions.

All the economically active adults, who reported their current status as self-employed, were invited to describe why they chose self-employment. Interviewers then coded up to four reasons using a grid. As a result of multiple choices there are 23,851 choice responses to this question from the 17,507 self-employed respondents. In 86% of cases only one reason was reported. Table 3 shows the list of options available to respondents and reports the proportions of total responses by UK region. The results in the table show the regional variation in motives behind entry into self-employment. 'Independence' is the most commonly reported factor, cited by over 20 per cent of individuals and is most commonly cited in London, Northern Ireland and West Midlands and least so in Wales (19.6%). 'Wanted more money' is more prevalent in peripheral regions where average income rates are lower, in particular North East and the West Midlands. The other most commonly cited motives are 'nature of the occupation' and 'opportunity arose'. Both of these, it might be argued, capture supply-side conditions, either concerning the nature of the skills that an

individual holds, or the availability of non-human resource. 'Nature of the occupation' is highly cited in London where professional services are predominant, and also in rural, peripheral regions such as Wales, Scotland and Northern Ireland where agricultural self-employment is relatively higher. In Northern Ireland 'joined the family business' is also heavily cited – perhaps reflecting the complex and fragmented nature of society in that province. Financial motives appear relatively less important in Northern Ireland.

A clear conclusion to emerge from Table 3 is that self-employment appears across all regions to be framed in a strongly positive light. This conclusion is, as noted earlier, subject to the caveat of *ex post* justification bias. Nevertheless, across the whole sample only 2.5% of responses refer to the lack of locally available jobs. There is however regional variation, with a higher proportion of such responses in peripheral regions with a legacy of former heavy industry such as North East, Wales and Scotland. The pairwise correlation coefficient between the regional response rates for 'no jobs locally' given in Table 3 and the UK Office for National Statistics regional unemployment rates for 2000 is 0.497 (statistical significance level 0.10).[3] The other key 'necessity' motivation offered to respondents is 'made redundant'. Numbers of individuals citing this motivation are rather higher, averaging nearly 7% of the whole sample. Here any correlation with regional economic peripherality is less apparent. The proportion is low in London and higher in regions in the north and Midlands, but is low in Wales and Northern Ireland. The correlation coefficient with regional unemployment rates in 2000 is not significant. The variation may reflect longer historical redundancy patterns.

A small but important number of the self-employed report that family commitments and a desire to work at home was important ('family/home'). The level of economic opportunity available elsewhere in the household, such as the presence of a spouse with a

secure job or income, may form an important moderating factor. This would appear to the case as there is a significant negative correlation across regions between the proportion citing this motivation and regional unemployment (correlation -0.68, significance 0.01).One final comment on Table 3 is that the proportions of responses to 'other reasons' are high, particularly in the more prosperous regions of the south and east, indicating the existence of considerable residual heterogeneity in the way in which individuals frame self-employment choice. There is a large negative correlation between the 'other reasons' proportion and regional unemployment (correlation -0.42, significance 0.18). Heterogeneity appears to be a feature of 'positive' self-employment motivation.

Data of a form where individuals are asked to evaluate a range of potential factors might lend itself to the use of a data reduction technique such as factor analysis. In principle this might form a useful avenue for research. However, as 86 per cent of respondents only report a single reason, application of factor analysis is impractical because it yields a high number of factors, many of which have very high individual loadings on to one particular item (motivation).

4. Modelling factors associated with particular *ex post* motivations

Model specification

This section describes a regression model of associations between a range of demographic and other controls and particular reported motivations for choosing self-employment. Since the structure of the motivations data does not lend itself to the use of factor analysis, an *a priori* grouping of motivations is used. Binary indicators are constructed as follows[4]:

1) Opportunity motivation = 1 if reported motivation is any of 'wanted more money', 'opportunity arose – resources available' or 'saw the demand/market';

2) Internal motivation = 1 if reported motivation is either 'to be independent / a change' or 'for better conditions of work';

3) Family/lifestyle motivation = 1 if reported motivation is either 'family commitments / wanted to work at home' or 'joined the family business';

4) Necessity motivation = 1 if reported motivation is either 'no jobs available (locally)' or 'made redundant';

5) Occupational motivation = 1 if reported motivation is 'nature of the occupation'.

In the 14 per cent of cases where the individual reports more than one motivation the first reported motivation is used to construct these dependent variables. This is in order to avoid such cases assuming a greater weight in the analysis, and to avoid potential inconsistencies where a particular individual may appear to have contradictory motives (for example both 'opportunity' and 'necessity').[5] A set of regional binary variables is used to allow the identification of any underlying regional differences in why people say they chose to be self-employed, after controlling for other differences in those regional populations. A probit regression estimator is then used to model associations between the five dependent variables and the regional, sectoral and other control variables.[6] The choice of other control covariates to include is to some extent constrained by the nature of the QLFS data source. The QLFS questionnaire is concise and limited to largely factual questioning about household structure and housing circumstance, demographics, earnings and hours of work, educational attainment and health status; little or no other attitudinal or cognitive background information is available.

The earlier discussion has highlighted the importance of differences between men and women in the formation of motivations towards self-employment. Consequently separate regressions are estimated for male and female sub-samples. The proportion of men and women, who report 'yes' within each of the categories, is shown at the foot of each column in Table 4. Other basic demographic information including variables for age (in non-linear quadratic form) and marital status are included as covariates. Membership of an ethnic minority is also included, since the relationship between ethnicity and self-employment is one that has figured in previous literature. Ethnic minority members may be more likely to be pushed into self-employment because other avenues are closed to them due to discrimination, language difficulties or failure by employers to recognise skills if acquired overseas.[7] The potential importance of household structure, if self-employment is seen as a means to balance work and family commitments, is captured through the inclusion of the number of dependent children under the age of 16. Those with children and family commitments may be more likely to report lifestyle factors.

Self-employed activities are highly heterogeneous and it is therefore important to control for the role of education to assess the extent to which both more educated individuals may be motivated to choose self-employment as a route to professional status and less educated individuals may be motivated to choose self-employment due to a lack of other economic alternatives. Education is captured through a set of four highest level of educational attainment dichotomous variables, with no qualifications defined as the reference category. Previous findings on education and self-employment tend to be inconclusive; arguments can be made for both a positive and a negative relationship. Skills associated with successful entrepreneurship may not necessarily be obtained from formal qualifications. However, those with more education may select themselves into professional occupations where self-

employment status, perhaps within the context of a professional partnership, is more common. Housing tenure status is also included because owner-occupation status, either as a mortgagee or outright-owner, may provide access to collateral and ease the resourcing of a new venture. This may be associated with more positive motivations towards self-employment. In order to control for the question of recall error, a variable is included which measures the time lag between the point of survey and the point at which the actual decision to become self-employed was made. A control variable for proxy respondent is also included to capture any extent to which proxy respondents provide a different pattern of response to face-to-face respondents[8]. Finally, as the data are pooled from three years, year dummy variables are included to capture any effect on stated motivations of changing aggregate economic or societal conditions.

Demographic and industrial composition effects

Table 4 reports marginal effects of each regression for male and female sub-samples. The reported likelihood ratio (Chow) tests show that in all cases, except the opportunity motivation, a common regression for males and females is strongly rejected. Before turning to regional effects, key findings relating to the particular control variables will be discussed. Firstly older individuals have a significantly higher probability of reporting internal and necessity motivations. They are less likely to report occupational motivations. Older men are also less like to report family/lifestyle or opportunity motivations, but there is no significant association here for women. This suggests that non-economic motives may figure more highly for older individuals who appear likely to be motivated by the prospect of personal fulfilment. On the other hand they may be more likely to be pushed into self-employment by lack of other economic opportunity, perhaps resulting from the effects of age discrimination in the labour market. Individuals tend to make significant occupation choice decisions at a

younger age and this may lead on to self-employment related to that choice or to choosing a career in an existing family business. Disability is, for men, associated with necessity motivations, and weakly with occupational motivations. Necessity self-employment may occur because of the lack of suitable alternative opportunities, or issues of access to work or discrimination (see Jones and Latreille, 2011).

Male black and minority ethnic individuals are more likely to report internal motivations, but less likely to report opportunity and necessity motivations. There are no significant associations for female ethnic minority members. The lower risk of redundancy apart, ethnic minorities may be more likely to frame self-employment as a second-best option because of lack of other opportunities. Again this is consistent with earlier research. However this group appear reluctant to frame their choice in terms of perceived exclusion from paid employment. Individuals with stronger family commitments, as indicated by the presence of dependent children or marital status, not surprisingly, are more likely to report family/lifestyle motivations. Married women are 14 percentage points more likely than never married women to report a family/lifestyle motive. Self-employed females with dependent children are also less likely to report opportunity, internal and necessity motivations. Both married and formerly married men are more likely to report opportunity motivations. Married and formerly married women are more likely to report family/lifestyle motivations, consistent with the importance of matching economic activity to caring responsibilities. Married women are also less likely to report internal motivations, suggesting that it is external pressures, such as family, which are more significant in decisions to choose self-employment.

Higher levels of educational attainment are associated with a higher likelihood of reporting internal motivations. Other significant educational effects are largely confined to

differences between university graduates and others. Graduates are less likely to report family/lifestyle motivations, but more likely to report an occupational motivation. For men education - particularly at university level - is associated with a lower likelihood of a necessity motivation. Female graduates are less likely to report opportunity motivations. The coefficients suggest that higher levels of education below university degree level are associated with a number of positive motivational factors, although for degree holders the nature of the occupation is very significant. Choice of profession, either alongside or after choice of university subject, may be a significant factor in whether an individual later becomes self-employed. Joining a family business may be associated with lower levels of educational attainment. Here cause and effect may be unclear; individuals with the prospect of a career in a family business may in fact choose not to stay in education because of the prior existence of that opportunity.

Owner-occupiers and private sector renters are generally more likely to report positive motivations for choosing self-employment, although coefficients are not in all cases statistically significant. Possession of housing wealth provides access to financial resource and allows business opportunity to be taken. Outright-owners, from a position of possessing high levels of wealth and therefore financial security, appear more likely to report lifestyle factors. In contrast, social sector renters, the reference category, are more likely to report a necessity motivation, or that self-employment was dictated by choice of occupation. This is consistent with social housing tenure being associated with more limited economic opportunity. Here choice of occupation may be associated with activity such as construction work.

Coefficients for the length of time in self-employment variable indicate that men with longer spells of self-employment are more likely to report internal, family/lifestyle and occupational motivations, but less likely to report a necessity motivation. Women with longer spells are also more likely to report family/lifestyle and occupational motivations and less likely to report necessity or opportunity motivations. This might indicate recall bias; those who have been self-employed for a long time are more likely to play down original necessity motivations. However necessity self-employed themselves may have shorter spells in self-employment and therefore are less likely to found with high levels of accumulated self-employment tenure.[9]

Reported industry sector marginal effects capture differences relative to the reference sector of public administration, health, education or other services. In many cases a significant pattern of marginal effects is found, and marginal effects may be substantial in size, particularly for occupational self-employment. So, for example, men are more likely to report an opportunity motivation if working in manufacturing, construction, distribution services or the financial sector, and less likely if working in the primary sector. Relative to the public sector, in all sectors, men have a higher relative probability of reporting a necessity motive and an internal motivation. Women have a higher probability of reporting a family/lifestyle motivation if working in manufacturing or construction, with very large marginal effects in each case. In nearly all sectors both men and women have lower marginal effects of reporting an occupational motivation, relative to the reference sector. Occupation-based self-employment is much more significant in health and education-related professions. An important conclusion here is that, given regional variation in industrial structure, it is important to control for this variation before assessing the importance of any remaining regional pattern in the reasons for choosing self-employment. Raw regional motivation

patterns may reflect industrial composition rather than underlying differences in regional culture.

Regional effects

The key point of interest here concerns whether regional variations in individual self-employment motivations are significant. This is indicated by the significance levels (p-values) of the likelihood ratio tests of the null hypothesis that the coefficients on the set of regional dummy variations are jointly zero. The results reported in Table 4 show that in some, but by no means all, cases the null hypothesis is rejected.[10] Each motivation will be considered in turn, and the pattern of observed regional coefficients discussed.

For the opportunity motivation, the null hypothesis that the set of regional coefficients are jointly zero cannot be rejected either for men or women (columns 1a and 1b), and only individual marginal effect for men in the South East is statistically significant. This shows that the self-employed do not perceive any differences in the regional strength of economic demand, despite any actual differences in prosperity or employment levels. Any perceived variation in that demand appears to be captured through other model controls, notably indicators of housing prosperity and industrial structure. For the internal motivation the regional coefficients are jointly significant for both men and for women, although for women the null hypothesis is rejected only at a level of 6 per cent (columns 2a and 2b). Relative to the reference region (East Midlands) both men and women in the West Midlands particularly have a highly likelihood of reporting an internal motive. For women the marginal effect is also higher in a number of other regions including in London, the south and east of England, Scotland and the North West. However for both men and women Northern Ireland stands out with a much larger marginal effect in both equations, 8 and 18 percentage points more likely

to report this motive compared to the reference region respectively. Internal motivations, such as the attractiveness of personal autonomy might relate to the strength of entrepreneurial culture. In Northern Ireland this may interconnect with the legacy of the religious divide between Catholicism and Protestantism, with the former associated with discrimination into certain forms of paid employment activity (Blackaby et al., 2008). Possible regional variation in the attitudes of women point to the scope for regionally nuanced policy to promote female self-employment. Wales, the North East of England, and to a lesser extent the East Midlands have a similar legacy of declining male-dominated unionised extractive industry. Whether this legacy has spilled over into female self-employment motivation is a question for future research.

For family/lifestyle motivations joint significance of the regional controls is found for men, but the null is not rejected for women (columns 3a and 3b). Overall women are much more likely to report family or lifestyle related reasons for choosing self-employment. However the regional marginal effects for women for these motivations are generally small and, in all but two regions, not individually significant. Men have a significantly lower probability of report family/lifestyle motivations in London, the East, West Midlands and the North West (column 3a). This pattern suggests diversity in the importance of family and lifestyle motivations. In both London and the East occupation-related factors may be more important (see column 5a), reflecting the importance of professional activity in these regions. In the North West and the West Midlands male economic activity has traditionally been dominated by heavy industry and the notion of the male 'bread-winner', even if self-employed, may be more persistent. Men in Northern Ireland have a higher probability of reporting family motivations relative to the reference region (marginal effect of over 4 percentage points), a result that may relate to a much higher incidence of family business

succession in the province, particularly in agriculture (Cromie et al., 1999). As Table 2 shows, agricultural self-employment is much more prevalent in Northern Ireland. In some other English regions there are statistically significant negative marginal effects, however these tend to be small in size (1 to 3 percentage points). For women there are significant negative marginal effects in London and in the North East (column 3b). In London, in particular, a culture of female self-employment focused around individual fulfilment, rather than the need to manage family and lifestyle, may be more prevalent.

For necessity motivations, it is again the case that the null of joint insignificance of the regional coefficients is rejected for men (column 4a) but accepted for women (4b). The likelihood that men will report a necessity motive for choosing self-employment, tends to reflect diversity in regional unemployment. Consistent with regional labour market trends, negative coefficients are found in the prosperous southern regions of England, and this is significant in London. There is also a large and significant negative coefficient for Northern Ireland, suggesting that men are, other things equal, 8 percentage points less likely to report a necessity motive in Northern Ireland relative to the reference region. Again this is consistent with the dominance of family firm related self-employment in this province, where self-employed individuals have enjoyed succession of employment in family-firms regardless of the state of the wider regional economy.

Finally the regressions in columns 5a and 5b show significant regional variation in the incidence of occupationally motivated self-employment. However the level of statistical significance in the test is, for women, only 6 per cent. As already noted, for men a higher incidence of occupational self-employment motivation stands out in London and the East, reflecting the relative importance of professional occupations in and around the capital. In

London and the East self-employment is more skewed towards the service sector (Table 2); the incidence of self-employed professionals in financial services and in health and other services may be higher. On the other hand construction sector self-employment, where occupational choice may also be a significant motivating factor, is also higher in the East. (Table 2). For women, individual marginal effects of between minus 4 and 6 percentage points are significant in four regions: North West, Yorkshire and the Humber, South East and South West. In the North West and in Yorkshire and the Humber, the service sector is relatively small, and the manufacturing sector larger. In the South East, and to a lesser extent in the South West, results in column 2b suggested the higher relative importance of internal motivations. Self-employment here appears to be framed more as a personal choice than as following from choice of occupation.

5. Conclusions and Implications for Public Policy

This paper has been concerned with the question of whether region matters in an understanding of why people choose self-employment. A common feature across all regions is the scale of independence-seeking behaviour as a motivation for choosing self-employment (Krueger et al., 2000). However entrepreneurial culture may be complex and difficult to pin down. Motivating factors such as 'independence', 'lifestyle' or 'financial reward' may be framed differently by different individuals in different contexts. For example, those who have been in self-employment for longer are more likely to cite internal motivations, as well as family/lifestyle motivations. Independence and ability to manage lifestyle may be desirable features of self-employment that emerge with the passage of time and accumulation of experience. The question posed asks whether, other things equal, these motivations exhibit regional variation over and above individual characteristics and circumstances.

The regression results presented in the paper suggest an equivocal answer to the question. For men regional effects tend to be jointly significant in models to explain who is more likely to report a particular motivation for choosing self-employment. The exception to this is opportunity motivations. Over and above variation in regional demand reflected in the strength of particular industrial sectors in particular regions, men (and women as well) do not choose self-employment because in some regions they perceive better opportunity for success.

For other motives, the incidence with which they are reported by men may vary across regions. Patterns of individual regional coefficients are, however, not necessarily straightforward to interpret, and in any case, despite statistical significance in some cases, may not be particular large in quantitative terms. Regional patterns may reflect and reinforce regional occupational structures, for example the greater incidence of professional self-employed activity around London, the south and east of England, or the negative impact on self-employment of the relative importance of manufacturing or the public sector in other regions away from the capital. Necessity self-employment may also reflect regional unemployment patterns, but the association is not particularly strong, but then the numbers who report necessity as a motive are not large.

Particular comment needs to be made about Northern Ireland, which does stand out as displaying a different pattern of reported motives. Although overall self-employment rates here are not any higher than elsewhere in the UK, the pattern of self-employment is very different, dominated by the much greater importance of agricultural self-employment and correspondingly lower proportions in financial and other professional services. Consequently

the reported patterns of motivations are different with much greater likelihood that both men and women will, other things equal, report lifestyle and family-related reasons. Despite the relatively lower prosperity in the province, necessity motives are less likely to be reported by men. The legacy of sectarian discrimination is a further potential differentiator - however levels of self-employment are similar across the religious divide, and the present data source does not allow for a tabulation of motivations against religious affiliation.[11] Results here point strongly to the importance of family business succession, particularly in agriculture and related business, as the likely explanation. For such people transition to self-employment in the family business may be anticipated from an early age and career choice may therefore bear little association to local labour market conditions external to that business.

For women, although they tend to report that they chose self-employment for rather different reasons than men, regional cultural differences may be of even less importance. The null hypothesis of common regional marginal effects is only rejected in the case of internal and occupational motivations, and then only at a 6 per cent level of significance. In the first of these, it is the different experience of Northern Ireland where women are more likely to cite, other things equal, personal internal motives that explains the finding.

What does explain why people chose self-employment? Demographic differences including age, education and particularly gender, are associated with particular reported motivations. Differences in regional industrial structure are also important. If reported self-employment motivations vary across regions, as shown in Table 3, it is likely to be because of differences in industrial and occupational employment patterns across regional economies, not because individuals in one region benefit to any significant degree from the influence of a stronger entrepreneurial culture or ‘milieu’.

A quantitative analysis such as presented here is by definition broad brush. Qualitative research which attempts to delve into potential regional cultural influences may provide a more nuanced analysis and findings. Uncovering why people choose self-employment is not straightforward. In particular, *ex post* questioning may be subject to substantial recall bias or *ex post* rationalisation. Recall bias may explain significant associations between particular motivations and accumulated self-employment tenure, and has the potential to bias estimated coefficients. However, such data are the best that are typically available. It is unfortunate that no further data have been collected in the UK since 2001. The economic environment for business start-ups has changed dramatically since 2001 and it would be very useful to know whether the pattern of motives observed ten years ago has changed significantly. In the case of Northern Ireland patterns may have changed with the establishment of greater economic stability since the Good Friday Agreement of 1998. Since the QLFS no longer asks about motives for choosing self-employment, an answer to this question would now require a bespoke collection of data. Future research may also focus on longitudinal analysis, tracking individuals through the entrepreneurial 'ladder' from initial intention to new venture formation and development, addressing issues of motivation and perception at each stage. However such data sources large enough to address questions of spatial variation are unusual.[12]Across all regions self-employment is overwhelmingly framed in positive terms. The data under analysis refer to a period of economic stability half way through the long period of sustained economic growth between 1991 and 2008. Self-employment rates increased across the UK during this period. Rising unemployment levels currently observed in peripheral regions of the UK may feed through to increased levels of 'necessity' self-employment. By its nature such new venture formation is likely to be under-resourced and fragile. In peripheral regions and at times of rising economic distress motives,

such as ‘wanted more money’, may in fact be framed in terms of ‘necessity’ rather than ‘opportunity’.

An understanding of why individuals choose to become self-employed is of importance in considering the appropriate design and targeting of entrepreneurship policy. It is perhaps reassuring that perceptions that entrepreneurial culture is relatively weak in places, held by some regional policy makers in the UK, may be misplaced. It is difficult from these findings to conclude, with the exception of Northern Ireland, that regional entrepreneurial culture varies significantly in quantitative impact and has much role to play in explaining regional variation in self-employment and therefore regional dynamism. That is not to say that policy may wish to address the overall level of transition into self-employment in particular regions[13], and seek to address the impact of the legacy for self-employment of particular inherited industrial structures. In the UK over the past three decades successive governments have sought to steer towards a more entrepreneurial culture through a wide (even bewildering) array of policy instruments (House of Commons Committee of Public Accounts 2007). In fact the most compelling reason for local or regional policy variation may be that patterns of motivations for self-employment vary spatially because of regional variation in industrial structure. Business start-up advice tailored to new activity in business to business services in the south east of England, for example, is unlikely to be appropriate for, or attractive to the self-employed in a peripheral rural locality or a peripheral region restructuring from a legacy of heavy industry. One important unanswered question for policy is whether it should target business start-up in sectors which appear strong in a particular region, or should seek to promote new business in under-represented sectors. In practice, regional development bodies tend to adopt a mixed stance, working with the pattern of

demand as it is, as well as formulating well-intentioned, if aspirational 'wish lists' of emerging sectors that they wish to promote.

Footnotes

[1] The choice of time period 1999 to 2001 is constrained by the availability of the question on motivation for becoming self-employed. This question has been asked only periodically in the QLFS and was dropped after 2001. This is unfortunate as it would be desirable to see how motives might have changed over a longer period of time, and in particular to assess the impact of recent economic recession on the patterns of motives.

[2] Each member of the QLFS sample is interviewed for five consecutive quarters in order to provide a rotating longitudinal element to the survey. This means that the spring quarter files for 2000 and for 2001 included two observations on those who were self-employed in each year, and therefore a duplicate (although potentially inconsistent) response to the question on reasons for becoming self-employed. To avoid duplicate observations in our analysis, those individuals in the spring quarter 2000 sample who were also included in the spring quarter 1999 sample, and those in the spring quarter 2001 sample who were also included in the spring quarter 2000 sample, were deleted from the analysis. In principle one could have deleted the first rather than the second duplicate observation. Both methods were investigated, and it was found that the results of the secondary analysis in each case were almost identical. Within the QLFS a significant proportion of respondents are by proxy (36.9% of the self-employed). The proportion of the self-employed who respond by proxy is higher than for the employed. In order to maintain sample size we retain proxy responses, but include a control variable in the regression analysis.

[3] It would be desirable to investigate this correlation using a more disaggregated level of geography. However this is not possible with the publically released QFLS datasets.

[4] We do not report a model for the final option shown in Table 3 ('other reasons') as the motivations here may be highly heterogeneous and idiosyncratic.

[5] Cross tabulation of responses where more than one is coded suggests that the ordering does contain information, and it is not the case that interviewers coded the those motives which appear higher on the grid as higher in importance. This does mean that a number of second, third and fourth responses are discarded, in order to avoid over-weighting in the analysis. Dawson and Henley (2011) investigate the information which may be contained within these combinations of response in further detail. Regression results are available on request which include these second, third and fourth motives, as well as results which restrict the sample to those who only report one motive. The broad conclusions from these are very similar to those reported in the paper. This is perhaps not surprising given that 86% of respondents do in fact only provide one motive. One advantage of this method over other approaches, which ask individuals to score a long list of possible motivations, is that irrelevant alternatives are ignored.

[6] One consideration here is that regression errors across the equations for each motive may not be independent. This possibility was investigated using a multivariate probit estimator

allowing for flexibility of non-zero cross-equation covariances. However results obtained were little changed from those reported. A further consideration is the extent to which the sample of self-employed within the QLFS is itself a non-random sample of the working population. Research on the modelling of the self-employment decision (see Le, 1999 and Parker, 2009) has addressed this. In the present context it is not easy to conceive of appropriate identifying instruments which would identify separately the choice to become self-employed from the motivation for that choice. In a related paper the authors have attempted to investigate this issue employing an identification strategy based on regression functional form.

[7] Parker (2009)provides a comprehensive and succinct summary of arguments and evidence concerning this relationship. See Clark and Drinkwater (2000) for recent British evidence.

[8] 37% of responses were provided by proxy from another household member.

[9] This suggestion is supported by further model estimation in which the sample was split into those who had been self-employed for less than four years and those for four or more years – a distinction that roughly corresponds to the Global Entrepreneurship Monitor's definition of early stage entrepreneurial activity. Approximately 32% of the sample has been self-employed for less than four years. These results are not reported in the paper but are available on request. The main findings are that there is little observed difference between the two groups in the regional effects for opportunity motivations. However, other things equal, there is significantly higher regional variation in family/lifestyle self-employment for the experienced self-employed than for the recently self-employed, with the former significantly less likely to report family/lifestyle motives in more prosperous regions. The experienced self-employed in prosperous regions are also significantly less likely to report necessity motives. These individuals therefore appear more likely, with the passage of time, to justify their choice of self-employment in terms of personal fulfilment.

[10] The reference region for the analysis is the East Midlands, chosen because of geographical centrality along the Humber to Severn "north-south" axis and because it might be viewed as an example of a well-performing region away from the London and south east England.

[11] Although patterns of employment and experience of employment discrimination between Protestant and Catholic communities in Northern Ireland are very different, rates of self-employment are only slightly higher for Catholics (Northern Ireland Statistics and Research Agency, 2010, Table A7.6).

[12] The US Panel Survey of Entrepreneurial Dynamics (Gartner et al., 2004) is the main notable example of an attempt to construct such a data source.

[13] A deeper level of policy localism appears likely in England as the regional development agencies are now replaced by local enterprise partnerships. Some have expressed scepticism that policy 'localism' reflects a genuine 'bottom-up' attempt to build local capacity in policy instruments; implementation of policy may be devolved but models of intervention remain laterally integrated (Gibb 2000). Variation in the scale, if not the type of provision across the UK has also reflected the use of significant levels of European Structural Funds in peripheral regions to support SME start-up and development activity. Localism in policy has been seen as a means to address concerns about both the efficiency of delivery and the level of take-up amongst the self-employed and business owners (Curran and Blackburn 1994).

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Table 1: Self-employment rates in UK Government regions 1995-2007

% of working age population	1995	2000	2005	2009
England				
North East	4.9	5.8	6.1	6.3
North West	6.1	7.0	7.8	8.0
Yorkshire and the Humber	6.6	7.2	7.8	8.2
East Midlands	6.6	7.8	9.4	7.9
West Midlands	6.4	6.9	7.9	8.0
East	8.7	9.2	10.6	10.2
London	7.6	9.2	10.9	10.7
South East	8.9	9.5	10.7	10.2
South West	9.9	9.8	10.7	11.2
Wales	7.2	8.1	8.6	8.7
Scotland	5.8	6.1	7.0	7.5
Northern Ireland	n.a.	8.2	10.4	9.4
United Kingdom	7.3*	8.1	9.1	9.2

Source: NOMIS (Quarterly Labour Force Survey/Annual Population Surveys)
Note: * Great Britain

Table 2: Self-employment and industrial structure across UK regions

Sector: % of workforce *% of self-employed*	Agriculture and fishing		Manufacturing, energy and water		Construction		Distribution, hotels, restaurants; transport, communications		Banking, finance, insurance		Public admin, education, health, other services	
	1999-2001	2010	1999-2001	2010	1999-2001	2010	1999-2001	2010	1999-2001	2010	1999-2001	2010
England:												
North	0.8	0.7	20.6	13.3	6.5	7.7	26.3	26.2	11.0	12.6	34.8	39.5
East	*3.1*	*4.1*	*8.1*	*4.4*	*13.9*	*19.9*	*33.1*	*25.2*	*17.3*	*19.9*	*24.6*	*26.6*
North	1.0	0.8	20.2	13.1	6.8	7.3	27.8	27.8	12.2	14.3	32.0	36.7
West	*4.8*	*3.8*	*7.6*	*7.0*	*18.3*	*20.7*	*32.0*	*26.5*	*16.4*	*19.7*	*20.9*	*22.3*
Yorks and	1.1	1.3	20.5	13.5	7.2	7.4	27.1	26.9	12.8	14.1	31.4	36.8
Humber	*3.5*	*5.7*	*9.1*	*5.2*	*20.8*	*20.8*	*30.0*	*27.0*	*16.0*	*18.3*	*20.6*	*22.9*
East Mids	1.8	1.5	24.0	17.1	6.9	6.9	26.8	27.9	11.9	12.0	28.7	34.6
	6.1	5.3	*9.4*	*8.4*	*20.5*	19.3	*26.9*	*25.0*	*16.4*	*21.1*	*20.7*	*20.8*
West Mids	1.4	1.4	25.1	14.5	6.5	7.5	25.3	26.0	12.4	14.1	29.3	36.5
	5.5	*6.5*	*9.2*	*6.5*	*20.6*	*22.0*	*26.5*	*23.9*	*18.2*	*19.8*	*19.9*	*21.3*
East	1.7	1.3	17.7	12.3	7.7	8.5	26.1	27.9	17.1	14.9	29.7	35.1
	3.8	*3.6*	*8.8*	*5.6*	*23.0*	*26.2*	*23.0*	*19.8*	*19.2*	*22.4*	*22.1*	*22.4*
London	0.2	0.1	9.6	4.4	5.5	6.7	26.4	27.5	25.4	27.0	33.0	34.3
	0.9	*0.2*	*6.1*	*2.5*	*15.8*	*18.3*	*22.8*	*23.3*	*26.2*	*28.3*	*28.2*	*27.4*
South East	1.4	0.9	15.4	10.1	7.1	8.3	26.6	28.0	18.9	16.3	30.6	36.4
	3.9	*1.8*	*7.2*	*5.0*	*21.4*	*23.5*	*21.3*	*20.2*	*22.5*	*22.7*	*23.7*	*26.8*
South	2.2	2.1	16.9	12.4	7.6	7.7	26.3	26.4	14.8	14.8	32.2	36.5
West	*8.0*	*8.7*	*7.5*	*7.4*	*20.4*	*21.9*	*23.0*	*17.6*	*18.8*	*20.0*	*22.5*	*24.4*
Wales:	2.7	2.2	20.0	12.6	7.7	7.9	24.1	24.6	10.0	11.2	35.6	41.5
	15.7	*11.5*	*6.3*	*5.2*	*19.9*	*20.1*	*25.9*	*24.6*	*12.5*	*17.6*	*19.7*	*21.0*
Scotland:	2.3	1.8	17.3	11.4	7.7	7.6	26.6	26.9	12.4	14.7	33.8	37.6

	10.2	*8.1*	*5.7*	*5.2*	*17.7*	*17.4*	*29.5*	*26.3*	*16.3*	*18.6*	*20.6*	*24.5*
N. Ireland:	4.9	3.8	16.7	13.2	9.8	8.3	24.0	24.9	7.5	11.6	37.2	38.1
	24.1	17.5	*6.1*	6.5	*23.1*	22.0	*24.0*	*24.4*	*8.9*	*13.6*	*13.8*	*16.0*

Source: authors' tabulation from UK Quarterly Labour Force Survey 1999-2001, UK Annual Population Survey (via www.nomisweb.co.uk) 2010

Table 3: Reported Motivations for Choosing Self-Employment by Region

%	North East	North West	Yorks and Humber	East Mids	West Mids	East	London	South East	South West	Wales	Scotland	Northern Ireland	UK
To be independent	21.49	21.71	22.14	20.67	23.48	21.22	23.50	22.59	22.08	19.56	22.21	23.45	22.16
Wanted more money	10.96	9.50	9.53	7.87	10.05	9.50	9.91	9.42	9.41	9.92	8.98	6.09	9.33
Better working conditions	3.65	4.48	4.26	3.41	3.64	3.20	4.34	4.03	4.15	3.55	3.74	5.45	3.99
Family commitments/ wanted to work at home	4.63	4.66	5.27	6.83	5.11	5.59	4.69	7.28	6.16	4.19	5.06	5.72	5.62
Opportunity arose - capital, space, equipment	9.55	10.63	9.47	10.30	9.73	8.99	7.50	7.87	9.61	7.64	9.84	12.37	9.21
Saw the demand	6.04	7.01	6.78	7.01	6.68	6.49	6.41	5.63	5.85	6.19	5.87	8.68	6.42
Joined the family business	4.92	4.39	5.44	5.79	5.16	4.03	2.24	3.55	5.08	7.55	6.79	14.04	5.04
Nature of occupation	14.89	14.70	12.50	14.15	13.21	17.04	19.96	15.44	13.87	19.93	16.23	17.08	15.76
No jobs available locally	4.63	2.80	3.08	1.83	2.28	1.99	1.82	2.13	2.52	4.28	3.28	1.20	2.46
Made redundant	7.72	7.42	7.96	8.78	7.88	7.78	5.01	6.96	7.59	4.82	6.16	2.03	6.84
Other reasons	9.13	10.09	10.99	11.34	10.27	11.96	11.21	12.14	11.43	10.01	10.07	3.14	10.71
No reason given	2.39	2.62	2.58	2.01	2.50	2.23	3.40	2.96	2.25	2.37	1.78	0.74	2.47
N	712	2211	1784	1640	1840	2559	2855	3749	2581	1099	1738	1083	23851

Source: authors' tabulations from QLFS Spring Quarters 1999 - 2001
Notes: Each individual could make up to four choices. Reported percentages are based upon 23851 responses from 17507 respondents. Sample includes proxy respondents. Individuals who gave no response at all are coded as 'no reason given' cases.

Table 4: Probit Regressions for Motivation for Choosing Self-Employment

	1) Opportunity motivation				2) Internal motivation				3) Family/lifestyle motivation			
	a) men		b) women		a) men		b) women		a) men		b) women	
	marg. effect	p-value	marg. effect	p-value	marg. effect	p-value	marg. effect	p-value	marg. effect	p-value	marg. effect	p-value
Demographic factors:												
Age	-0.0077	***0.000***	-0.0016	0.626	0.0126	***0.000***	0.0141	***0.001***	-0.0040	***0.000***	0.0039	0.322
Age squared/100	0.00006	***0.007***	0.00002	0.513	-0.0002	***0.000***	-0.0002	***0.000***	0.00002	***0.039***	-0.0000	0.310
Disabled	-0.0019	0.854	-0.0247	0.108	-0.0148	0.233	-0.0205	0.259	-0.0011	0.829	-0.0108	0.540
Ethnic minority	-0.0400	***0.013***	0.0121	0.592	0.0588	***0.003***	0.0176	0.571	0.0107	0.194	0.0237	0.431
Household and family status:												
No. dependent Children<16	-0.0060	0.135	-0.0189	***0.002***	-0.0075	0.109	-0.0337	***0.000***	0.0095	***0.000***	0.0805	***0.000***
Marital Status (reference: never married												
Married	0.0317	***0.008***	-0.0107	0.567	-0.0172	0.227	-0.0581	***0.006***	-0.0035	0.542	0.1373	***0.000***
Widowed/divorced/separated	0.0299	*0.062*	0.0121	0.592	0.0252	0.165	-0.0185	0.457	0.0072	0.353	0.0830	***0.006***
Highest education (reference: no qualifications):												
Degree	-0.0342	***0.013***	-0.0787	***0.000***	0.0442	***0.010***	0.0517	***0.039***	-0.0197	***0.001***	-0.0970	***0.000***
Other higher education	-0.0059	0.728	-0.0327	0.120	0.0733	***0.000***	0.0625	***0.026***	-0.0016	0.833	-0.0102	0.681
A-levels	0.0068	0.549	-0.0050	0.793	0.0523	***0.000***	0.0598	***0.015***	-0.0073	0.132	0.0587	0.790
O-levels/GCSEs	-0.0300	***0.032***	-0.0165	0.365	0.0456	***0.009***	-0.0008	0.972	0.0054	0.387	0.0345	0.108
Other-qualifications	-0.0055	0.701	-0.0124	0.540	0.0258	0.140	0.0248	0.343	-0.0012	0.839	0.0383	0.113
Housing tenure (reference: social renter)												
Outright owner	0.0081	0.647	0.0248	0.388	0.0129	0.536	0.0304	0.369	0.0945	***0.000***	0.0781	***0.022***
Owner with mortgage	0.0361	***0.024***	0.0423	*0.097*	0.0336	***0.077***	0.0678	***0.024***	0.0391	***0.000***	0.0447	0.129
Private sector renter	-0.0202	0.321	0.0081	0.801	0.0552	***0.025***	0.0834	***0.033***	0.0438	***0.000***	0.0330	0.387
Other controls												
Years in self-employment	-0.0001	0.829	-0.0019	***0.002***	0.0014	***0.006***	-0.0004	0.664	0.0032	***0.000***	0.0025	***0.003***

Proxy respondent	-0.0129	*0.087*	0.0359	***0.009***	-0.0107	0.237	-0.0104	0.509	0.0051	0.142	-0.0435	***0.003***
Sector (reference: public admin, education and health)												
Agriculture and fishing	-0.0515	***0.007***	-0.0238	0.433	-0.0145	0.510	-0.1144	***0.002***	0.1425	***0.000***	0.0388	0.266
Manufacturing, energy and water	0.1020	***0.000***	-0.0021	0.925	0.0693	***0.001***	-0.0028	0.914	0.0401	***0.000***	0.1605	***0.000***
Construction	0.0769	***0.000***	-0.0493	0.260	0.0807	***0.000***	-0.0644	0.222	-0.0019	0.795	0.2370	***0.000***
Distribution, hotels, transport	0.0709	***0.000***	0.0231	0.107	0.0930	***0.000***	0.0590	***0.001***	0.0469	***0.000***	0.0344	***0.033***
Banking, finance, insurance	0.1091	***0.000***	0.0228	0.141	0.0925	***0.000***	0.0307	*0.083*	0.0079	0.329	0.0430	***0.016***
Region (reference: East Midlands)												
North East	-0.0068	0.775	0.0272	0.461	-0.0167	0.565	0.0544	0.242	0.0079	0.486	-0.0899	***0.014***
North West	-0.0065	0.709	0.0281	0.292	0.0042	0.843	0.0775	***0.023***	-0.0182	***0.009***	-0.0386	0.165
Yorkshire and the Humber	-0.0235	0.195	0.0153	0.578	0.0171	0.453	0.0516	0.142	-0.0006	0.940	-0.0414	0.152
West Midlands	-0.0017	0.925	-0.0067	0.801	0.0382	*0.093*	0.0968	***0.006***	-0.0138	*0.064*	-0.0198	0.495
East	-0.0128	0.451	-0.0321	0.181	-0.0051	0.806	0.0688	***0.036***	-0.0146	***0.038***	-0.0033	0.217
London	-0.0153	0.368	-0.0303	0.211	0.0293	0.165	0.0685	***0.035***	-0.0270	***0.000***	-0.0678	***0.011***
South East	-0.0293	*0.064*	-0.0297	0.180	0.0262	0.188	0.0832	***0.005***	-0.0084	0.224	-0.0257	0.298
South West	-0.0211	0.213	-0.0181	0.451	0.0297	0.162	0.0566	*0.077*	-0.0075	0.229	-0.0021	0.937
Wales	-0.0065	0.760	-0.0256	0.407	0.0000	0.999	0.0115	0.776	-0.0088	0.625	-0.0514	0.119
Scotland	-0.0187	0.308	-0.0031	0.909	0.0044	0.845	0.0769	***0.033***	0.0007	0.835	-0.0463	0.113
Northern Ireland	-0.0337	0.112	0.0023	0.952	0.0845	***0.002***	0.1773	***0.000***	0.0431	***0.005***	0.0020	0.961
Log Likelihood	-5858.9		-2059.4		-7420.3		-2545.0		-2394.1		-2280.5	
chi² (35) (p-value)	***0.000***		***0.000***		***0.000***		***0.000***		***0.000***		***0.000***	
chi² (11) joint sig. of regions (p-value)	0.695		0.180		***0.020***		*0.058*		***0.000***		0.114	
Likelihood ratio test chi² (36) males=females (p-value)	0.160				***0.025***				***0.000***			
N	12052		4700		12052		4700		12052		4700	
% dependent variable =1	19.7%		16.5%		31.8%		24.5%		6.8%		22.9%	

Table 4: (continued)

	4) Necessity motivation				5) Occupational motivation			
	a) men		b) women		a) men		b) women	
	marg. effect	p-value	marg. effect	p-value	marg. effect	p-value	marg. effect	p-value
Demographic factors:								
Age	0.0160	***0.000***	0.0066	***0.001***	-0.0051	***0.005***	-0.0058	*0.052*
Age squared/100	-0.0001	***0.000***	-0.0007	***0.003***	0.00002	0.262	0.00004	0.219
Disabled	0.0174	***0.027***	-0.0012	0.870	-0.0154	*0.095*	0.0270	*0.086*
Ethnic minority	-0.0260	***0.036***	0.0001	0.993	-0.0146	0.308	-0.0171	0.518
Household and family status:								
No. dependent Children<16	-0.0051	0.112	-0.0141	***0.000***	0.0038	0.260	-0.0046	0.441
Marital Status (reference: never married								
Married	0.0048	0.620	-0.0060	0.494	-0.0167	0.106	-0.0198	0.258
Widowed/divorced/separated	-0.0195	*0.085*	0.0025	0.810	-0.0256	***0.045***	0.0145	0.483
Highest education (reference: no qualifications):								
Degree	-0.0435	***0.000***	-0.0020	0.831	0.0450	***0.000***	0.0949	***0.000***
Other higher education	-0.0068	0.581	0.0002	0.987	-0.0311	***0.031***	0.0020	0.930
A-levels	-0.0001	0.991	0.0005	0.953	-0.0358	***0.000***	-0.0392	***0.043***
O-levels/GCSEs	-0.0147	0.164	-0.0027	0.761	-0.0139	0.251	0.0099	0.618
Other-qualifications	-0.0165	0.113	-0.0132	0.156	0.0017	0.888	-0.0087	0.689
Housing tenure (reference: social renter)								
Outright owner	-0.0238	***0.050***	-0.0068	0.560	-0.0511	***0.000***	-0.0503	***0.034***
Owner with mortgage	-0.0155	0.186	-0.0094	0.415	-0.0607	***0.000***	-0.0901	***0.000***
Private sector renter	-0.0391	***0.004***	-0.0087	0.494	-0.0119	0.454	-0.0510	***0.044***
Other controls								
Years in self-employment	-0.0078	***0.000***	-0.0031	***0.000***	0.0036	***0.000***	0.0046	***0.000***

Proxy respondent	-0.0125	***0.032***	-0.0008	0.900	0.0361	***0.000***	0.0228	*0.096*
Sector (reference: public admin, education and health)								
Agriculture and fishing	0.0380	***0.025***	-0.00005	0.998	-0.0824	***0.000***	0.0577	***0.046***
Manufacturing, energy and water	0.0736	***0.000***	0.0137	0.223	-0.1270	***0.000***	-0.1022	***0.000***
Construction	0.0565	***0.000***	0.0711	***0.011***	-0.1017	***0.000***	-0.1312	***0.000***
Distribution, hotels, transport	0.0497	***0.000***	0.0039	0.585	-0.1392	***0.000***	-0.1126	***0.000***
Banking, finance, insurance	0.0210	***0.054***	0.0229	***0.003***	-0.1187	***0.000***	-0.0851	***0.000***
Region (reference: East Midlands)								
North East	0.0121	0.500	0.0287	0.179	0.0090	0.689	0.0128	0.721
North West	-0.0021	0.866	0.0112	0.437	0.0264	0.117	-0.0581	***0.014***
Yorkshire and the Humber	0.0032	0.819	0.0305	*0.060*	-0.0041	0.809	-0.0540	***0.030***
West Midlands	-0.0015	0.910	0.0042	0.768	-0.0305	*0.063*	-0.0400	0.109
East	-0.0114	0.362	0.0144	0.303	0.0396	***0.017***	-0.0167	0.482
London	-0.0293	***0.018***	0.0072	0.586	0.0379	***0.021***	-0.0097	0.681
South East	-0.0140	0.234	0.0009	0.938	0.0128	0.400	-0.0421	***0.048***
South West	-0.0074	0.568	0.0043	0.739	-0.0115	0.465	-0.0449	***0.045***
Wales	-0.0195	0.210	0.0474	***0.021***	0.0269	0.176	0.0072	0.814
Scotland	-0.0018	0.895	0.0054	0.712	0.0186	0.290	-0.0145	0.581
Northern Ireland	-0.0790	***0.000***	-0.0272	0.162	0.0186	0.344	-0.0396	0.250
Log Likelihood	-4119.3		-835.6		-4735.6		-1973.6	
chi² (35) (p-value)	***0.000***		***0.000***		***0.000***		***0.000***	
chi² (11) joint sig. of regions (p-value)	***0.000***		0.139		***0.000***		*0.057*	
Likelihood ratio test chi² (36) males=females (p-value)	***0.000***				***0.007***			
N	12052		4700		12052		4700	
% dependent variable =1	13.0%		4.8%		15.3%		17.1%	

Source: authors' computations from QLFS 1999-2001

Notes: regressions also include year dummy variables, coefficients not reported; *italic* indicates p-value < 0.10, ***bold italic*** indicates p-value < 0.05.